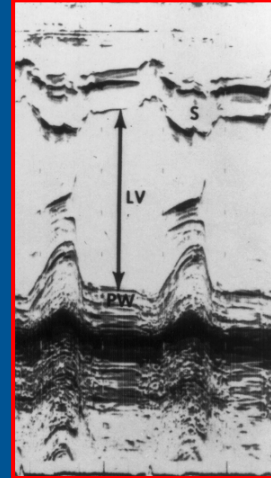


## M-Mode Echocardiography

### Is it still Alive?

Itzhak Kronzon, MD,FASE  
Lenox Hill Hospital  
New York, NY



M-Mode offers better time and image resolution.

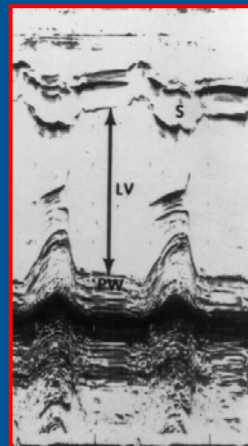
#### Sampling Rate

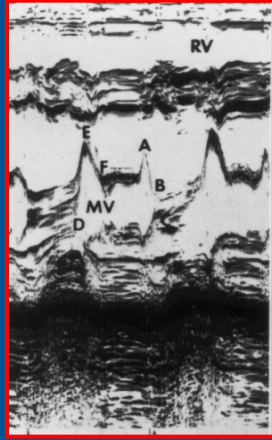
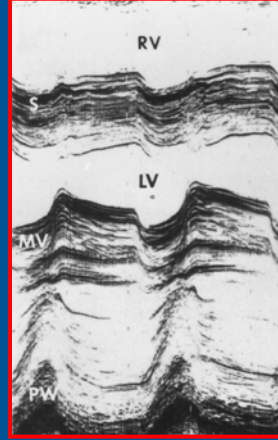
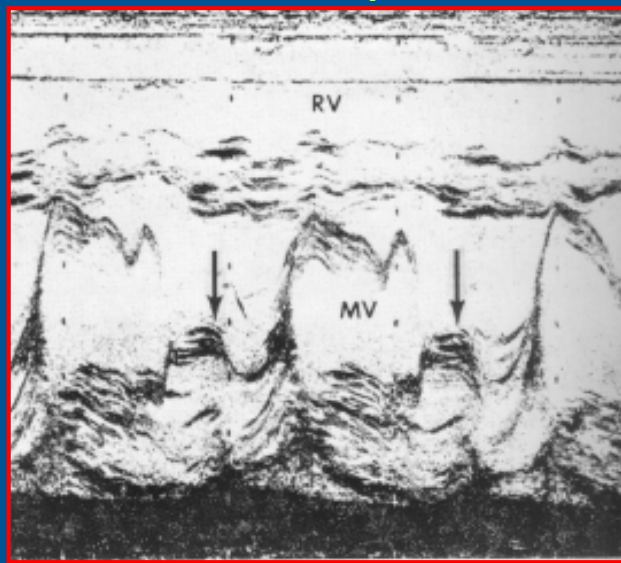
M-Mode: 1800 / sec

2D: 30 / sec

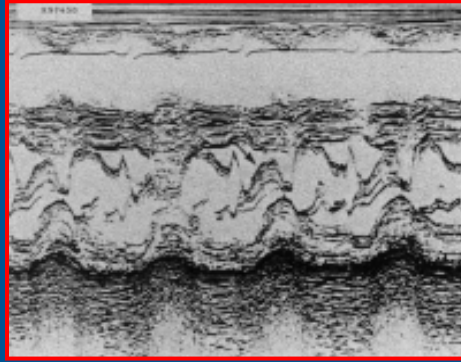
#### Disadvantages

1. Single Dimension (depth only)
2. Nonperpendicular orientation  
(always use 2D guidance)



**Normal MV****MS****MV Prolapse**

## M-Mode in HOCM

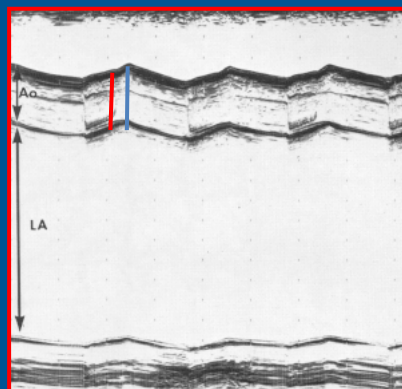


**ASH / SAM**



**Mid-systolic AV Closure**

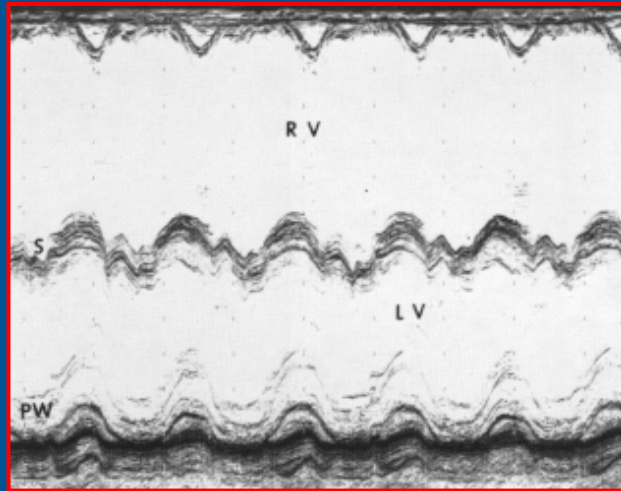
## Marked LA Dilation in pt with MS



**IVR**

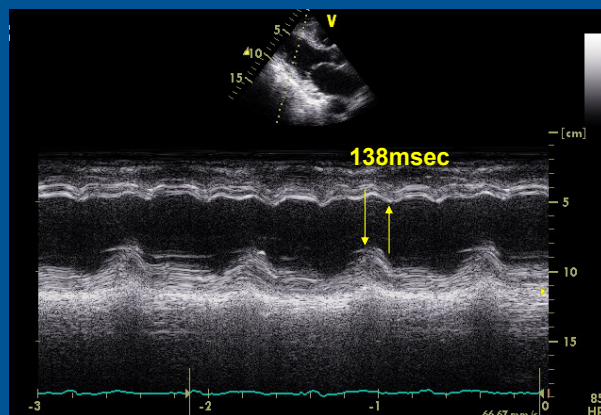
**Note absence of early diastolic rapid ventricular filling and short IVR**

## ASD with Large L to R Shunt



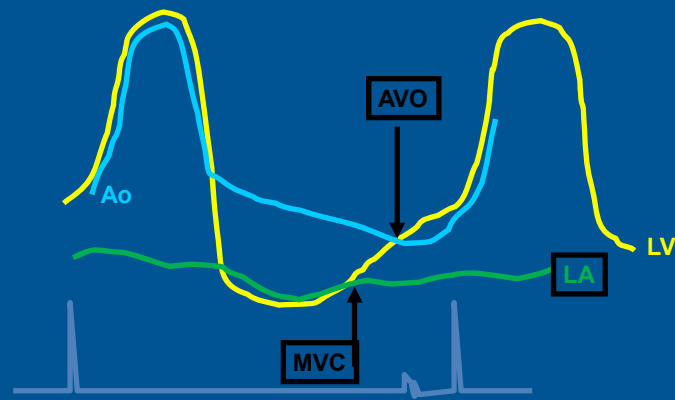
Note markedly dilated RV and “paradoxical” septal motion

## Dyssynchrony by M-Mode -LBBB

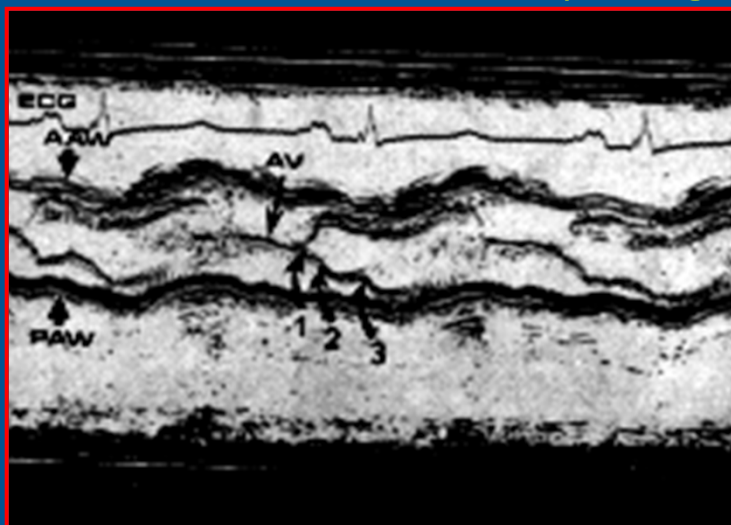


Dyssynchrony of >130msec is associated with good CRT response  
(sensitivity 100%, specificity 63%)

## Severe Aortic Regurgitation

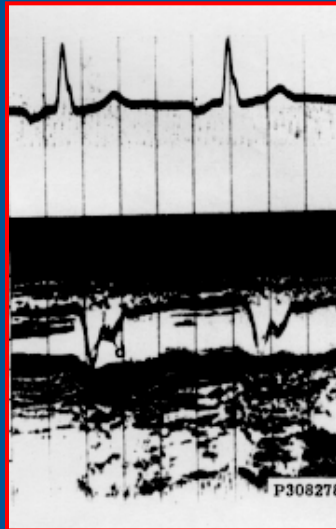


## Premature aortic valve opening



## Polling Question # 1

### Pulmonic Valve M-Mode

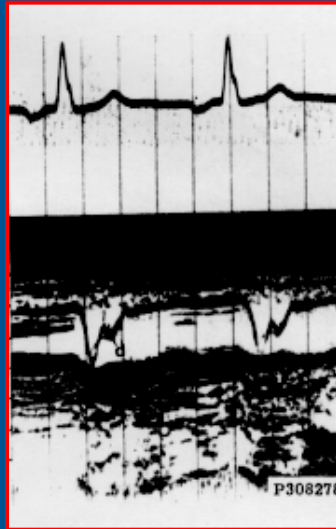


37 year old woman with  
dyspnea and systolic murmur

What is the diagnosis?:

1. Valvular PS
2. Pulmonary HTN
3. Constrictive pericarditis
4. Subpulmonic stenosis

## Pulmonic Valve M-Mode

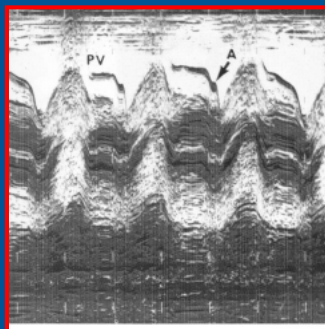


**ANSWER:**

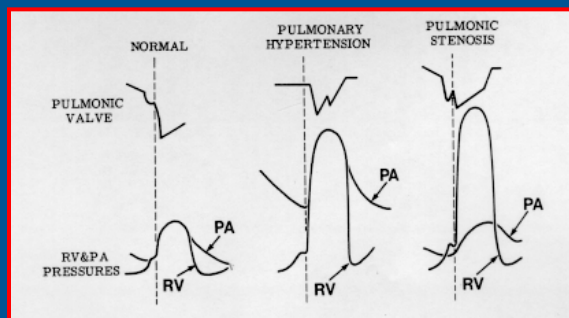
**B. Pulmonary HTN**

**Note the absence of A-dip in spite of NSR and also the "flying W" pattern**

## Pulmonic Valve M-Mode

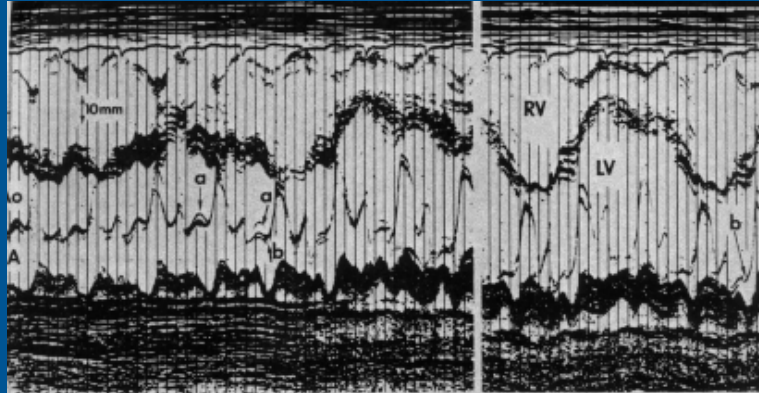


**Normal PV**

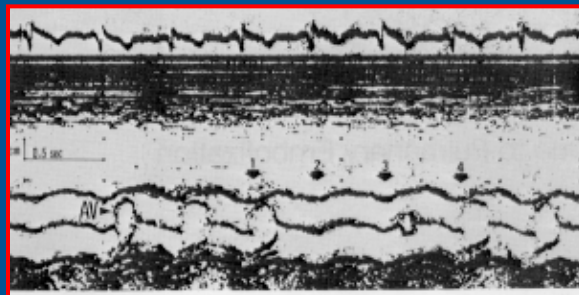


**Feigenbaum, Echocardiography, 3rd ed.**

**Respiratory Variation in Ventricular Sizes  
Pulsus Paradoxus  
Cardiac Tamponade**



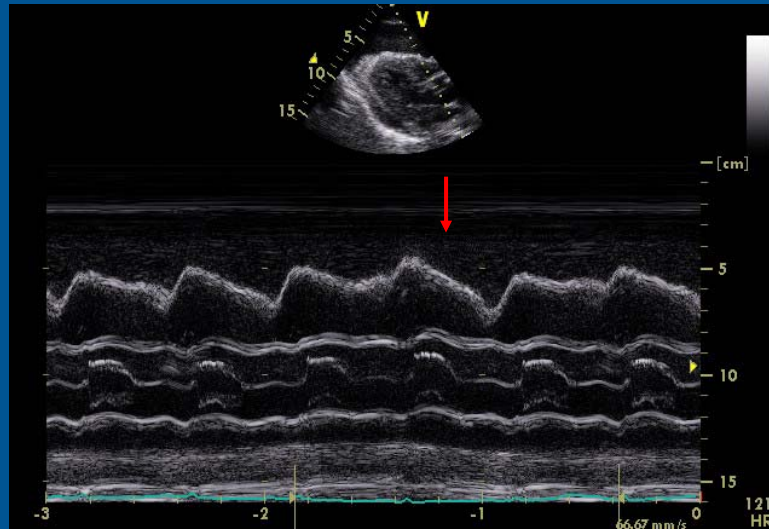
**M-Mode in Pulsus Paradoxus**



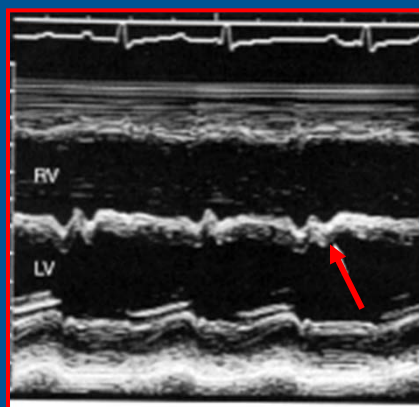
**Marked respiratory variation in aortic valve opening**



## RV diastolic collapse

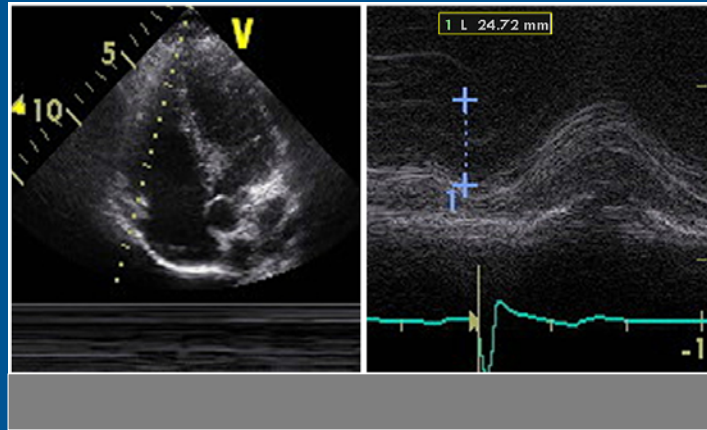


## M-Mode in Constrictive Pericarditis



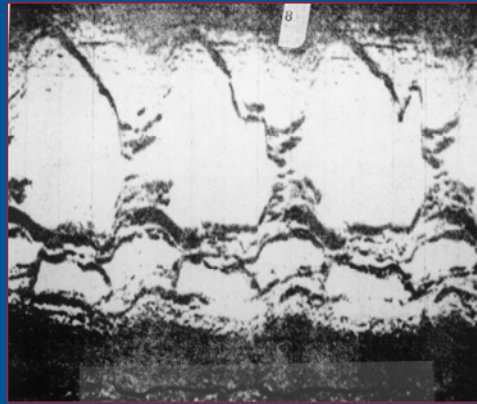
Note the diastolic  
Septal “bounce”

Tricuspid Annular Plane Systolic Excursion (TAPSE)  
Mitral Annular Plane Systolic Excursion (MAPSE)



Markers of global ventricular systolic function

Polling Question #2



**47 year old female with palpitations. What is the diagnosis?**

- A. ASD (secundum)
- B. Ebstein's anomaly
- C. Intraaortic Balloon
- D. Arrhythmogenic RV Dysplasia